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ABSTRACT

A microcomputer program was developed to facilitate and expedite the course planning and updating processes. Two vocational schools (one full-time and one part-time) were identified that had recently been or were involved in course revision. Two programs from each school were placed on the program disk. Data were placed on a data disk, and resultant output was discussed with the teachers at the schools. Adjustments were made in the program from the suggestions of the users. It was planned that craft committees will be asked to use the program and evaluate its effectiveness with their committee in Fall 1985. Recommendations were for the creation of a program data disk for each vocational program area in Pennsylvania and development of unit plans that match and complement the program data disks. (An appendix, the largest portion of the report, is a presentation describing the computerized course of study planning program with examples of the video screens and examples of data, including a list of units for tool and die, list of units by grade level for tool and die, and a course schedule for tool and die.) (YLB)

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FINAL REPORT

A Computer Model to Facilitate Involvement of
Occupational Advisory Committees in Program Planning

Project No: 83-5009
Agency No: 4-10-14-720-1

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Pennsylvania Department of Education
Bureau of Vocational Education
Research Coordinating Unit

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Project Abstract

- A. A Computer Model to Facilitate Involvement of Occupational Advisory Committee in Program Planning
- B. Dr. William Williams
- C. \$8,700
- D. March 1, 1985 - June 30, 1985
- E. 1. Objectives. (1) Identify two vocational schools (one full-time, one part-time) that have recently or are now involved in course revision. (2) Develop a microcomputer program that will facilitate and expedite the course planning and updating processes. (3) Evaluate the model and course planning strategies with craft and/or advisory groups.
- 2. Procedures. Two schools will be selected and two programs from each will be placed on the program disk. A generic drive disk will be developed which will contain the menu and the space for down loading information from the specific program disk.

3. Contribution. The results of this study should help schools involve craft committees and the time consuming task developing course content. Planning is the first step in getting industry involved in other phases of the program such as time-on-task, equipment needs, and teacher technological update.
4. Deliverables. Five copies of a final report explaining the procedures and five disks for each program area and five generic driver disks.

Introduction

This project was developed in the Summer of 1984 but funding was delayed until March of 1985 leaving only four months for completion. Since most schools dismissed early in June, it was not possible to complete all of the intended evaluation procedures. The process will be completed when the schools go back into session in the Fall of 1985.

Accomplishments

Objective #1

Objective Number One "Identify two vocational schools (one full-time, and one part-time) that have recently or are now involved in course revision" was accomplished.

The city of Erie's vocational high school was selected for the full-time school and the Erie County AVTS was selected as the part-time school. Mr. Henry Pilker, Director of the City AVTS and Mr. Richard P. Deluca, Acting Director, Erie County AVTS agreed to select several programs which could be used as examples to be placed on the computer disks which were to be developed.

The Tool and Dye Program at Erie County AVTS and the Electronics Technology Program from the City AVTS were selected for inclusion on the disks when they were developed.

Objective #2

Object Number Two "Develop a microcomputer program that will facilitate and expedite the planning and updating process" was accomplished.

Presented examples of the video screens and examples of data are included in appendix A. Copies of the program disk and formatted data disk are included in appendix B. Examples of program disks for the Tool and Dye Program and the Electronic Technology Program are in appendix C.

Objective #3

Objective Number Three "Evaluate the model and course planning strategies with craft and/or advisory committees" was not fully achieved. The computer program was developed, data was placed on a data disk and the resultant output discussed with the teachers at both Erie schools. Adjustments in the program were made from the suggestions of the users. Because of time constraints, craft committees will be asked to use the program and evaluate it's effectiveness with their respective craft committees in the Fall Semester of 1985.

Outcome:

The program was developed and presentations of the program capabilities were made at the Vocational Conference at Seven Springs and at the Vocational Administrators' Conference in Carlisle in 1985. As a result of these presentatives, six requests for the program have been received.

BEA school district is using the program as is Centre County AVTS.

Recommendations:

1. It is recommended that a program data disk be created for each vocational program area in Pennsylvania.

These program disks should contain all of the units and problem areas in each vocational program. The opportunity now exists to standardize the terminology for units and problem areas still allowing the freedom for each school to both select and/or change any or all unit titles, problem areas, length of time the material is taught and the grade at which it is offered.

2. It is also recommended that consideration be given to developing unit plans which match and compliment the program data disks.
3. Both the unit plans and the data disk should be reviewed by qualified teachers and industry representatives to assure quality course content.
4. Examples showing how the program can be used to make up yearly schedules, 9 week schedules and individual educational plans from the list of problem areas or competencies on the program data disk should be developed.

APPENDICES

PENN STATE COMPUTERIZED
COURSE OF STUDY PLANNING PROGRAM

Presented

August 2, 1985

to

The Vocational Administrators of Pennsylvania

Designed by

William Williams
Associate Professor of
Agricultural and Extension Education

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Introduction

Course of planning has been difficult because it requires the handling of a large amount of rapidly changing information in a school environment where schedule changes may be frequent. The Craft Committee and teacher must interact to improve the program in relatively short time periods.

This program will both simplify and expedite the process of course planning through the use of microcomputers.

The program:

1. Provides format for listing units, time requirements and grade levels at which the units are taught
2. Standardizes terminology for units and their subdivisions
3. Provides a list of units and problem areas for each vocational program, with suggested time and grade assignments
4. Provides a suggested schedule of assigned units and problem areas together with time allocations and grade assignments
5. Allows the teacher to add or delete units, problem areas and adjust time as well as change the grade at which the unit or problem area will be taught
6. Allows a teacher and Craft Committee to select those units and problem areas that best fit the needs of the labor market served by the school

PENN STATE SCHEDULING PROGRAM

- (1) - ADD OR MODIFY A UNIT
- (2) - SCROLL THROUGH THE UNITS
- (3) - CREATE A COURSE SCHEDULE
- (4) - PRINT ALL UNITS
- (5) - PRINT A COURSE SCHEDULE
- (6) - MAKE A BACKUP COPY OF THIS DISK
- (7) - HELP

PRESS THE LETTER OF THE DESIRED ACTION

ADD OR MODIFY DATA BASE RECORDS

- (1) - MODIFY A UNIT OR PROBLEM AREA
- (2) - ADD A NEW UNIT
- (3) - RETURN TO MAIN MENU

PRESS THE DESIRED KEY TO BEGIN

UNIT NUMBER TO MODIFY - ?

(R) TO RETURN TO MAIN

UNIT NUMBER TO MODIFY - 2101

(R) TO RETURN TO MAIN

1 - UNIT NUMBER : 101

2 - UNIT TITLE : MILLING MACHINE OPERATIONS

	PROBLEM AREA	MINUTES	GRADE
3	Safety practice	120	10
4	Slotting; internal	120	10
5	Slotting; external	120	10
6	Holding devices	120	10
7	Slab; face; step and straddle milling	120	10
8	Index work	120	10
9	Form milling	120	10
10	Borring	120	10
11	Rotary table work	120	10
12	Three dimensional reproduction milling	120	10
13	Speeds and feeds	120	10
14			
15			
16			
17			

TOTAL TIME - 1320

(E) - EDIT A FIELD

(S) - SAVE THIS UNIT

(R) - RETURN TO MAIN SCREEN

1 - UNIT NUMBER : ?

2 - UNIT TITLE :

	PROBLEM AREA	MINUTES	GRADE
3 -			
4 -			
5 -			
6 -			
7 -			
8 -			
9 -			
10 -			
11 -			
12 -			
13 -			
14 -			
15 -			
16 -			
17 -			

TOTAL TIME -

- (1) - LIST ALL UNITS ON PRINTER
- (2) - LIST ALL PROBLEM AREAS BY GRADE ON PRINTER
- (3) - RETURN TO MAIN KEYBOARD

BE SURE PRINTER IS ON LINE AND HAS PAPER BEFORE PRINTING

COURSE SCHEDULE TO BE MODIFIED - (1), (2), (3), (4), (N)EW

(R)ETURN TO MAIN KEYBOARD

BEST COPY AVAILABLE

SCHEDULE HEADING INFORMATION

1 SCHOOL NAME :

2 TEACHER NAME :

3 COURSE NAME :

4 GRADE LEVEL :

5 NUMBER OF MINUTES IN EACH PERIOD :

6 NUMBER OF PERIODS IN SCHOOL YEAR :

0 : TOTAL MINUTES/SCHOOL YEAR

7 DATE SCHEDULE PREPARED :

8 NOTES :

(E) - EDIT

(C) - CREATE COURSE SCHEDULE

(R) - RETURN TO MAIN

BEST COPY AVAILABLE

COURSE PERIOD : 0

MINUTES LEFT : 0

PROBLEM :

MINUTES : 0

(E) - ENTER A PROBLEM (B) - BACKWARD (F) - FORWARD (R) - RETURN

BEST COPY AVAILABLE

UNIT NUMBER : 101
UNIT TITLE : MILLING MACHINE OPERATIONS

#	PROBLEM AREA	MINUTES	GRADE
1	Safety practice	120	10 ()
2	Slotting; internal	120	10 ()
3	Slotting; external	120	10 ()
4	Holding devices	120	10 ()
5	Slab; face; step and straddle milling	120	10 ()
6	Index work	120	10 ()
7	Form milling	120	11 ()
8	Borring	120	11 ()
9	Rotary table work	120	11 ()
10	Three dimensional reproduction milling	120	11 ()
11	Speeds and feeds	120	10 ()

UNIT TIME - 1320

UNIT NUMBER : 102
UNIT TITLE : LATHE OPERATIONS

#	PROBLEM AREA	MINUTES	GRADE
1	Safety operations	120	10 ()
2	Precision turning	120	10 ()
3	Boring	120	10 ()
4	Drilling and tapping	120	10 ()
5	Taper turning	120	10 ()
6	Thread cutting	120	10 ()
7	Form cutting	120	12 ()
8	Grinding attachments	120	12 ()
9	Speeds and feeds	120	10 ()

UNIT TIME - 1080

UNIT NUMBER : 103
UNIT TITLE : DRILL PRESS OPERATION

#	PROBLEM AREA	MINUTES	GRADE
1	Safety practices	120	10 ()
2	Speeds and feeds	120	10 ()
3	Drilling	120	10 ()
4	Power tapping	120	10 ()
5	Fly cutting	120	10 ()
6	Deep hole drilling	120	10 ()
7	Hole saw operations	120	11 ()

UNIT TIME - 840

UNIT NUMBER : 104
UNIT TITLE : SHAPER OPERATIONS

#	PROBLEM AREA	MINUTES	GRADE
1	Safety practices	120	10 ()
2	Cutting tools	120	10 ()
3	Contour and angular cutting	120	12 ()
4	Slotting	120	10 ()
5	Roughing and finish machining	120	10 ()

UNIT TIME - 720

UNIT NUMBER : 105
UNIT TITLE : SURFACE GRINDER OPERATIONS

#	PROBLEM AREA	MINUTES	GRADE
1	Safety Practices	120	10 ()
2	Holding devices and methods	120	10 ()
3	Parallel grinding	120	10 ()
4	Wheel dressing procedures	120	10 ()
5	Squaring methods	120	10 ()
6	Contour grinding	120	12 ()
7	Slot grinding	120	10 ()

UNIT TIME - 840

UNIT NUMBER : 111
UNIT TITLE : E.D.M. OPERATIONS

#	PROBLEM AREA	MINUTES	GRADE
1	Safety practices	120	11 ()
2	Fundamentals of EDM	120	10 ()
3	Operational procedures	120	11 ()
4	Mold cavity cutting	120	11 ()
5	Die block cutting	120	11 ()
6	Broken tap and drill removal	120	10 ()

UNIT TIME - 720

UNIT NUMBER : 112
UNIT TITLE : N.C. OPERATIONS

#	PROBLEM AREA	MINUTES	GRADE
1	Safety practices	120	11 ()
2	Speeds and feeds	120	11 ()
3	Machine tool Programing	120	11 ()
4	Tape preparation	120	11 ()
5	Machine tool operations	120	11 ()
6	Machine tool setups	120	11 ()

UNIT TIME - 720

UNIT NUMBER : 113
UNIT TITLE : HEAT TREATING

#	PROBLEM AREA	MINUTES	GRADE
1	Safety practices	120	11 ()
2	Tool steel treating	120	11 ()
3	Metal surface treatment	120	11 ()
4	Metal casting	120	11 ()

UNIT TIME - 480

UNIT NUMBER : 114
UNIT TITLE : BENCH WORK

#	PROBLEM AREA	MINUTES	GRADE
1	Safety practices	120	11 ()
2	Layout work	120	11 ()
3	Filing	120	11 ()
4	Hand and power tool operations	120	11 ()
5	Stock selection	120	11 ()
6	Polishing procedures	120	11 ()
7	Lapping and honing procedures	120	11 ()
8	Bearing fitting	120	11 ()
9	Hand tapping and reaming	120	11 ()
10	Assembly work	120	11 ()

UNIT TIME - 1200

UNIT NUMBER : 115
UNIT TITLE : METAL CUTTING SAWS OPERATION

#	PROBLEM AREA	MINUTES	GRADE
1	Safety practices	120	11 ()
2	Speeds and feeds	120	11 ()
3	Saw blade welding	120	11 ()
4	Blade selection	120	11 ()
5	Band and reciprocating saw operation	120	11 ()
6	Contour sawing	120	11 ()

UNIT TIME - 720

UNIT NUMBER : 116
UNIT TITLE : MEASUREMENT AND INSPECTION

#	PROBLEM AREA	MINUTES	GRADE
1	Micrometer usage	120	10 ()
2	Vernier caliper usage	120	10 ()
3	Dial test indicators	120	10 ()
4	Gage blocks	120	11 ()
5	Sine blocks	120	11 ()
6	Precision squares	120	11 ()
7	Limit gages	120	11 ()
8	Optical comparator	120	12 ()
9	Hardness tester	120	12 ()
10	Surface plate care and usage	120	12 ()
11	Inspection procedures	120	10 ()

UNIT TIME - 1320

UNIT NUMBER : 117
UNIT TITLE : BLUE PRINT READING

#	PROBLEM AREA	MINUTES	GRADE
1	Reading multiple view drawings	120	10 ()
2	Shop sketching	120	10 ()
3	Cutting planes	120	12 ()
4	Sectional viewings	120	10 ()
5	Assembly drawings	120	12 ()
6	Parts lists	120	12 ()
7	Jigs and fixture drawings	120	12 ()
8	Die assembly drawings	120	12 ()
9	Mold drawings	120	12 ()

UNIT TIME - 1080

UNIT NUMBER : 118
UNIT TITLE : MATHEMATICS

#	PROBLEM AREA	MINUTES	GRADE
1	Basic geometric rules	120	10 ()
2	Right triangle trigonometry	120	10 ()
3	Speed and feed computing	120	11 ()
4	Practical formula application	120	10 ()
5	Shop formula usage	120	11 ()

UNIT TIME - 600

*****17*****

PROBLEM AREAS FOR GRADE LEVEL - 10

UNIT NUMBER : 101
UNIT TITLE : MILLING MACHINE OPERATIONS

#	PROBLEM AREA	MINUTES	GRADE
1	Safety practice	120	10 ()
2	Slotting; internal	120	10 ()
3	Slotting; external	120	10 ()
4	Holding devices	120	10 ()
5	Slab; face; step and straddle milling	120	10 ()
6	Index work	120	10 ()
11	Speeds and feeds	120	10 ()
		UNIT TIME - 840	

UNIT NUMBER : 102
UNIT TITLE : LATHE OPERATIONS

#	PROBLEM AREA	MINUTES	GRADE
1	Safety operations	120	10 ()
2	Precision turning	120	10 ()
3	Boring	120	10 ()
4	Drilling and tapping	120	10 ()
5	Taper turning	120	10 ()
6	Thread cutting	120	10 ()
9	Speeds and feeds	120	10 ()
		UNIT TIME - 840	

UNIT NUMBER : 103
UNIT TITLE : DRILL PRESS OPERATION

#	PROBLEM AREA	MINUTES	GRADE
1	Safety practices	120	10 ()
2	Speeds and feeds	120	10 ()
3	Drilling	120	10 ()
4	Power tapping	120	10 ()
5	Fly cutting	120	10 ()
6	Deep hole drilling	120	10 ()
		UNIT TIME - 720	

UNIT NUMBER : 104
UNIT TITLE : SHAPER OPERATIONS

#	PROBLEM AREA	MINUTES	GRADE
1	Safety practices	120	10 ()
2	Cutting tools	120	10 ()
4	Slotting	120	10 ()
5	Roughing and finish machining	120	10 ()
		UNIT TIME - 600	

UNIT NUMBER : 105
UNIT TITLE : SURFACE GRINDER OPERATIONS

#	PROBLEM AREA	MINUTES	GRADE
1	Safety Practices	120	10 ()
2	Holding devices and methods	120	10 ()
3	Parallel grinding	120	10 ()
4	Wheel dressing procedures	120	10 ()
5	Squaring methods	120	10 ()
7	Slot grinding	120	10 ()
		UNIT TIME - 720	

UNIT NUMBER : 111
UNIT TITLE : E.D.M. OPERATIONS

#	PROBLEM AREA	MINUTES	GRADE
2	Fundamentals of EDM	120	10 ()
6	Broken tap and drill removal	120	10 ()
		UNIT TIME - 240	

UNIT NUMBER : 116
UNIT TITLE : MEASUREMENT AND INSPECTION

#	PROBLEM AREA	MINUTES	GRADE
1	Micrometer usage	120	10 ()
2	Vernier caliper usage	120	10 ()
3	Dial test indicators	120	10 ()
11	Inspection procedures	120	10 ()

UNIT TIME - 480

UNIT NUMBER : 117
UNIT TITLE : BLUE PRINT READING

#	PROBLEM AREA	MINUTES	GRADE
1	Reading multiple view drawings	120	10 ()
2	Shop sketching	120	10 ()
4	Sectional viewings	120	10 ()

UNIT TIME - 360

UNIT NUMBER : 118
UNIT TITLE : MATHEMATICS

#	PROBLEM AREA	MINUTES	GRADE
1	Basic geometric rules	120	10 ()
2	Right triangle trigonometry	120	10 ()
4	Practical formula application	120	10 ()

UNIT TIME - 360

NUMBER OF GRADE LEVEL 10 PROBLEM AREAS - 42 TOTAL MINUTES - 5160

PROBLEM AREAS FOR GRADE LEVEL - 11

UNIT NUMBER : 101
 UNIT TITLE : MILLING MACHINE OPERATIONS

#	PROBLEM AREA	MINUTES	GRADE
7	Form milling	120	11 ()
8	Borring	120	11 ()
9	Rotary table work	120	11 ()
10	Three dimensional reproduction milling	120	11 ()
		UNIT TIME - 480	

UNIT NUMBER : 103
 UNIT TITLE : DRILL PRESS OPERATION

#	PROBLEM AREA	MINUTES	GRADE
7	Hole saw operations	120	11 ()
		UNIT TIME - 120	

UNIT NUMBER : 111
 UNIT TITLE : E.D.M. OPERATIONS

#	PROBLEM AREA	MINUTES	GRADE
1	Safety practices	120	11 ()
3	Operational procedures	120	11 ()
4	Mold cavity cutting	120	11 ()
5	Die block cutting	120	11 ()
		UNIT TIME - 480	

UNIT NUMBER : 115
UNIT TITLE : METAL CUTTING SAWS OPERATION

#	PROBLEM AREA	MINUTES	GRADE
1	Safety practices	120	11 ()
2	Speeds and feeds	120	11 ()
3	Saw blade welding	120	11 ()
4	Blade selection	120	11 ()
5	Band and reciprocating saw operation	120	11 ()
6	Contour sawing	120	11 ()
		UNIT TIME - 720	

UNIT NUMBER : 116
UNIT TITLE : MEASUREMENT AND INSPECTION

#	PROBLEM AREA	MINUTES	GRADE
4	Gage blocks	120	11 ()
5	Sine blocks	120	11 ()
6	Precision squares	120	11 ()
7	Limit gages	120	11 ()
		UNIT TIME - 480	

UNIT NUMBER : 118
UNIT TITLE : MATHEMATICS

#	PROBLEM AREA	MINUTES	GRADE
3	Speed and feed computing	120	11 ()
5	Shop formula usage	120	11 ()
		UNIT TIME - 240	

NUMBER OF GRADE LEVEL 11 PROBLEM AREAS - 41 TOTAL MINUTES - 4920

UNIT NUMBER : 112
UNIT TITLE : N.C. OPERATIONS

#	PROBLEM AREA	MINUTES	GRADE
1	Safety practices	120	11 ()
2	Speeds and feeds	120	11 ()
3	Machine tool Programing	120	11 ()
4	Tape preparation	120	11 ()
5	Machine tool operations	120	11 ()
6	Machine tool setups	120	11 ()
		UNIT TIME - 720	

UNIT NUMBER : 113
UNIT TITLE : HEAT TREATING

#	PROBLEM AREA	MINUTES	GRADE
1	Safety practices	120	11 ()
2	Tool steel treating	120	11 ()
3	Metal surface treatment	120	11 ()
4	Metal casting	120	11 ()
		UNIT TIME - 480	

UNIT NUMBER : 114
UNIT TITLE : BENCH WORK

#	PROBLEM AREA	MINUTES	GRADE
1	Safety practices	120	11 ()
2	Layout work	120	11 ()
3	Filing	120	11 ()
4	Hand and power tool operations	120	11 ()
5	Stock selection	120	11 ()
6	Polishing procedures	120	11 ()
7	Lapping and honing procedures	120	11 ()
8	Bearing fitting	120	11 ()
9	Hand tapping and reaming	120	11 ()
10	Assembly work	120	11 ()
		UNIT TIME - 1200	

PROBLEM AREAS FOR GRADE LEVEL - 12

UNIT NUMBER : 102
 UNIT TITLE : LATHE OPERATIONS

#	PROBLEM AREA	MINUTES	GRADE
7	Form cutting	120	12 ()
8	Grinding attachments	120	12 ()
		UNIT TIME - 240	

UNIT NUMBER : 104
 UNIT TITLE : SHAPER OPERATIONS

#	PROBLEM AREA	MINUTES	GRADE
3	Contour and angular cutting	120	12 ()
		UNIT TIME - 120	

UNIT NUMBER : 105
 UNIT TITLE : SURFACE GRINDER OPERATIONS

#	PROBLEM AREA	MINUTES	GRADE
6	Contour grinding	120	12 ()
		UNIT TIME - 120	

UNIT NUMBER : 114
UNIT TITLE : MEASUREMENT AND INSPECTION

#	PROBLEM AREA	MINUTES	GRADE
8	Optical comparator	120	12 ()
9	Hardness tester	120	12 ()
10	Surface plate care and usage	120	12 ()

UNIT TIME - 360

UNIT NUMBER : 117
UNIT TITLE : BLUE PRINT READING

#	PROBLEM AREA	MINUTES	GRADE
3	Cutting planes	120	12 ()
5	Assembly drawings	120	12 ()
6	Parts lists	120	12 ()
7	Jigs and fixture drawings	120	12 ()
8	Die assembly drawings	120	12 ()
9	Mold drawings	120	12 ()

UNIT TIME - 720

UNIT NUMBER : 119
UNIT TITLE : TURRET LATHE OPERATIONS

#	PROBLEM AREA	MINUTES	GRADE
1	Safety practices	120	12 ()
2	Setup procedures	120	12 ()
3	Tool sharpening	120	12 ()
4	Production work	120	12 ()

UNIT TIME - 480

UNIT NUMBER : 120

UNIT TITLE : TWO AND THREE DIMENSIONAL ENGRAVING OPERATIONS

#	PROBLEM AREA	MINUTES	GRADE
1	Safety practices	120	12 ()
2	Speeds and feeds	120	12 ()
3	Tool sharpening	120	12 ()
4	Model making	120	12 ()
5	Setup	120	12 ()
6	Operational procedures	120	12 ()
7	Sign making	120	12 ()
8	Label making	120	12 ()
9	Mold engraving	120	12 ()
10	Ratio calculations	120	12 ()

UNIT TIME - 1200

NUMBER OF GRADE LEVEL 12 PROBLEM AREAS - 27 TOTAL MINUTES - 3240

PROBLEM AREAS FOR GRADE LEVEL - 13

UNIT NUMBER : 119
UNIT TITLE : TURRET LATHE OPERATIONS

#	PROBLEM AREA	MINUTES	GRADE
1	Safety practices	120	12 ()
2	Setup procedures	120	12 ()
3	Tool sharpening	120	12 ()
4	Production work	120	12 ()

UNIT TIME - 480

UNIT NUMBER : 120
UNIT TITLE : TWO AND THREE DIMENSIONAL ENGRAVING OPERATIONS

#	PROBLEM AREA	MINUTES	GRADE
1	Safety practices	120	12 ()
2	Speeds and feeds	120	12 ()
3	Tool sharpening	120	12 ()
4	Model making	120	12 ()
5	Setup	120	12 ()
6	Operational procedures	120	12 ()
7	Sign making	120	12 ()
8	Label making	120	12 ()
9	Mold engraving	120	12 ()
10	Ratio calculations	120	12 ()

UNIT TIME - 1200

TOTAL NUMBER OF UNITS - 16 TOTAL MINUTES - 13320

COURSE SCHEDULE

SCHOOL NAME : PSU

TEACHER NAME : Wm. Wms.

COURSE NAME : Tool and Dye

GRADE LEVEL : 10

NUMBER OF MINUTES IN EACH PERIOD : 45

NUMBER OF PERIODS IN SCHOOL YEAR : 180

8100 : TOTAL MINUTES/SCHOOL YEAR

DATE SCHEDULE PREPARED :

NOTES :

#	UNIT #	PA#	PROBLEM AREA	MINUTES		
1	101	1	Safety practice	120	(	)
2	101	2	Slotting; internal	120	(	)
3	101	3	Slotting; external	120	(	)
4	101	4	Holding devices	120	(	)
5	101	5	Slab; face; step and straddle milling	120	(	)
6	101	6	Index work	120	(	)
7	101	11	Speeds and feeds	120	(	)
8	102	1	Safety operations	120	(	)
9	102	2	Precision turning	120	(	)
10	102	3	Boring	120	(	)
11	102	4	Drilling and tapping	120	(	)
12	102	5	Taper turning	120	(	)
13	102	6	Thread cutting	120	(	)
14	102	9	Speeds and feeds	120	(	)
15	103	1	Safety practices	120	(	)
16	103	2	Speeds and feeds	120	(	)
17	103	3	Drilling	120	(	)
18	103	4	Power tapping	120	(	)
19	103	5	Fly cutting	120	(	)
20	103	6	Deep hole drilling	120	(	)
21	104	1	Safety practices	120	(	)
22	104	2	Cutting tools	120	(	)
23	104	4	Slotting	120	(	)
24	104	5	Roughing and finish machining	120	(	)
25	105	1	Safety practices	120	(	)
26	105	2	Holding devices and methods	120	(	)
27	105	3	Parallel grinding	120	(	)
28	105	4	Wheel dressing procedures	120	(	)
29	105	5	Squaring methods	120	(	)
30	105	7	Slot grinding	120	(	)
31	111	2	Fundamentals of EDM	120	(	)
32	111	6	Broken tap and drill removal	120	(	)
33	116	1	Micrometer usage	120	(	)

34	116	2	Vernier caliper usage	120	(	28	)
35	116	3	Dial test indicators	120	(		)
36	116	11	Inspection procedures	120	(		)
37	117	1	Reading multiple view drawings	120	(		)
38	117	2	Shop sketching	120	(		)
39	117	4	Sectional viewings	120	(		)
40	118	1	Basic geometric rules	120	(		)
41	118	2	Right triangle trigonometry	120	(		)
42	118	4	Practical formula application	120	(		)

SCHOOL NAME : PSU

TEACHER NAME : Wm. Wms.

COURSE NAME : Tool and Dye

GRADE LEVEL : 10

NUMBER OF MINUTES IN EACH PERIOD : 45

NUMBER OF PERIODS IN SCHOOL YEAR : 180

8100 : TOTAL MINUTES/SCHOOL YEAR

DATE SCHEDULE PREPARED :

NOTES :

#	UNIT #	PA#	PROBLEM AREA	MINUTES
1	101	1	Safety practice	120 ()
2	101	2	Slotting; internal	120 ()
3	101	3	Slotting; external	120 ()
4	101	4	Holding devices	120 ()
5	101	5	Slab; face; step and straddle milling	120 ()
6	101	6	Index work	120 ()
7	101	11	Speeds and feeds	120 ()
8	102	1	Safety operations	120 ()
9	102	2	Precision turning	120 ()
10	102	3	Boring	120 ()
11	102	4	Drilling and tapping	120 ()
12	102	5	Taper turning	120 ()
13	102	6	Thread cutting	120 ()
14	102	9	Speeds and feeds	120 ()
15	103	1	Safety practices	120 ()
16	103	2	Speeds and feeds	120 ()
17	103	3	Drilling	120 ()
18	103	4	Power tapping	120 ()
19	103	5	Fly cutting	120 ()
20	103	6	Deep hole drilling	120 ()
21	104	1	Safety practices	120 ()
22	104	2	Cutting tools	120 ()
23	104	4	Slotting	120 ()
24	104	5	Roughing and finish machining	120 ()
25	105	1	Safety practices	120 ()
26	105	2	Holding devices and methods	120 ()
27	105	3	Parallel grinding	120 ()
28	105	4	Wheel dressing procedures	120 ()
29	105	5	Squaring methods	120 ()
30	105	7	Slot grinding	120 ()
31	111	2	Fundamentals of EDM	120 ()
32	111	6	Broken tap and drill removal	120 ()
33	116	1	Micrometer usage	120 ()

34	116	2	Vernier caliper usage	120	(30)
35	116	3	Dial test indicators	120	()
36	116	11	Inspection procedures	120	()
37	117	1	Reading multiple view drawings	120	()
38	117	2	Shop sketching	120	()
39	117	4	Sectional viewings	120	()
40	118	1	Basic geometric rules	120	()
41	118	2	Right triangle trigonometry	120	()
42	118	4	Practical formula application	120	()